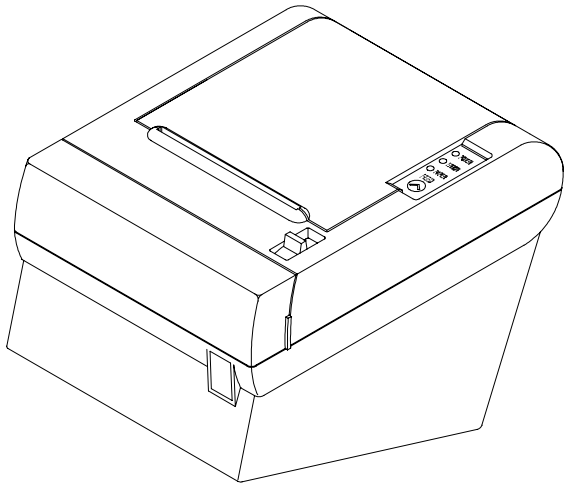
User's Manual

MODEL OM-9300

(POS THERMAL PRINTER)



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Caution

Some semiconductor devices are easily damaged by static electricity. You should turn the printer "OFF", before you connect or removed the cable on the rear side, in order to guard the printer against the static electricity.
If the printer is damaged by the static electricity, you should turn the printer "OFF".

Notice

The contents of this manual are subject to change without notice.

FCC CLASS A

FCC COMPLIANCE STATEMENT FOR AMERICAN USERS
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which cause the user will be required to correct the interference at his/her own expense.

FOR CANADIAN USERS
This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limits applicables aux appareils numeriques de Class A preccrites dans le reglement sur le brouillage radiolectrique edicte par le Ministere des Communications du Canada.

Operating Precaution

When using the Printer

- Be careful not to drop or bump the printer on a hard surface.
- Do not install the printer in direct sunlight or such areas. Suitable environment for the use of the printer is as follows:
  - Operating temperature : 5°C to 45°C
  - Relative humidity : 10% to 90% (No condensation)
- Do not install the printer near devices that generate strong electromagnetic fields such as a copy machine.
- Do not open the platen cover during printing .
- Do not remove or reinstall the communication cable during printing or transmission.
- Do not touch the connectors of the communication cable during printing.
- Switch the POWER OFF when not in use.
- Do not use alcohol or other solvent when cleaning.
- The AC adapter may become warm when in use. This is normal and is not a malfunction.

Thermal Paper Handling

- Store the thermal paper in a cool, dry and dark place.
- Do not rub the paper with hard object.
- Do not leave the paper with hard object.
- Do not allow plastic film, erasers, or adhesive tape to touch the paper for long periods.
- Do not stack the thermal paper with diazo copies immediately after copying or wet-type copies.
- Do not use chemical glue.
- Always use the clean thermal paper.

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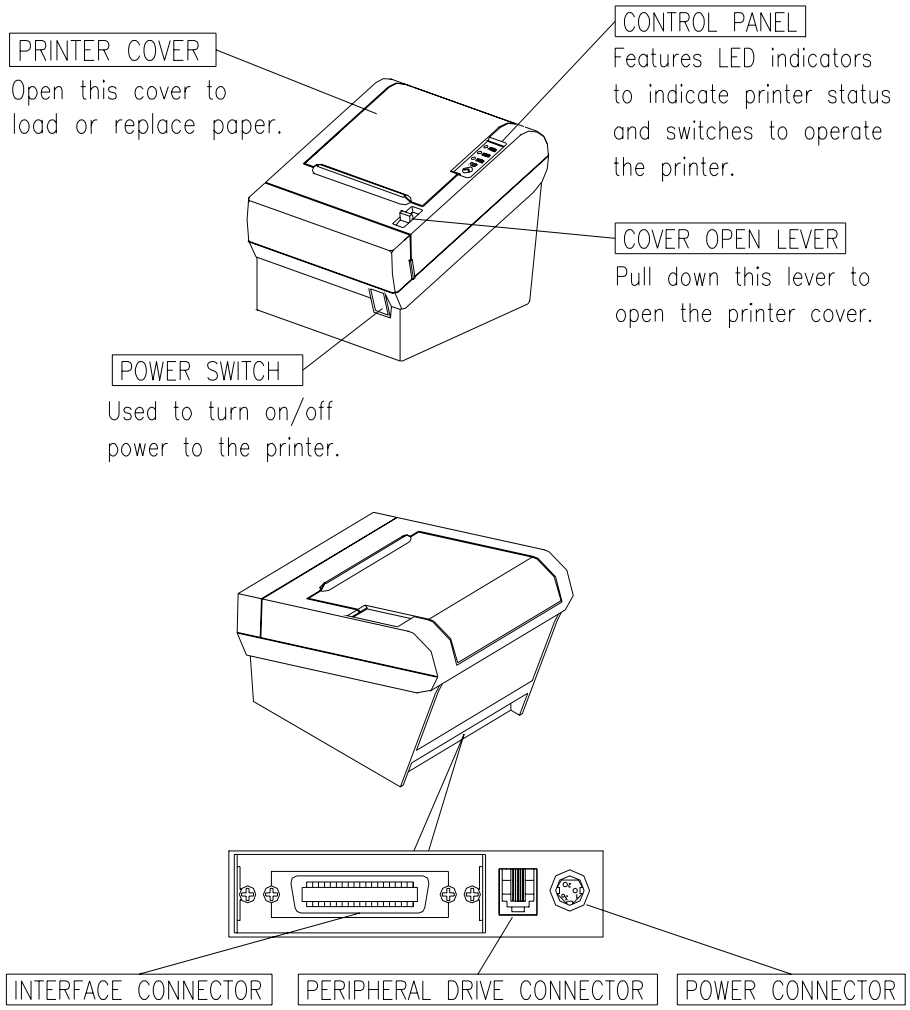
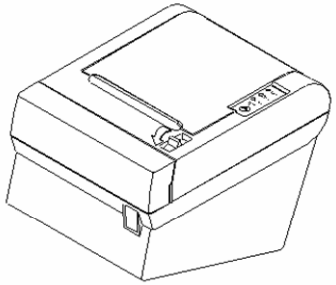
Chapter 1. PARTS IDENTIFICATIONS


PRINTER COVER
Open this cover to load or replace paper.
CONTROL PANEL
Features LED indicators to indicate printer status and switches to operate the printer.
COVER OPEN LEVER
Pull down this lever to open the printer cover.
POWER SWITCH
Used to turn on/off power to the printer.
INTERFACE CONNECTOR
PERIPHERAL DRIVE CONNECTOR
POWER CONNECTOR

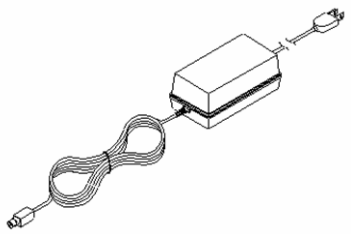
Chapter 2. PREPARATION

2.1. Unpacking

When unpacking your printer box, make sure it contains the printer and all accessories. If any accessories is missing or damage, please contact your dealer for assistance.



OM-9300 printer



AC adapter

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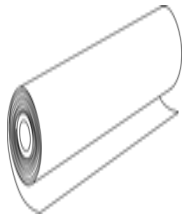
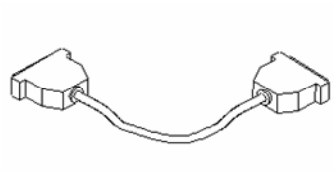


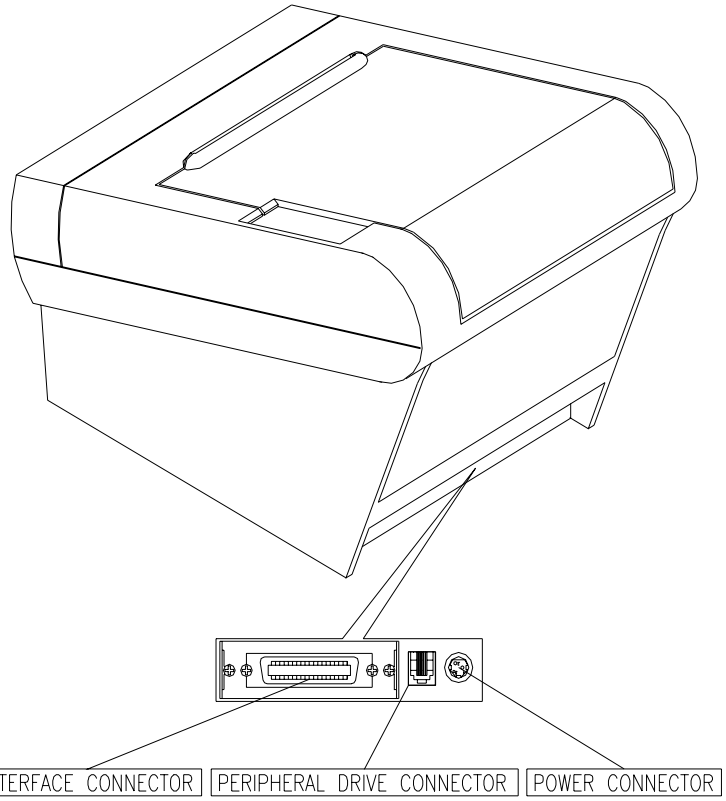
Roll Paper



Interface cable

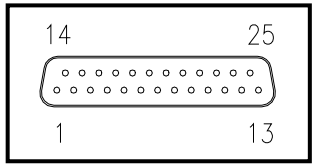
2.2. Connecting the cable

You can connect up to four cables to the printer. They all connect to the connector panel on the back of the printer as shown below:


INTERFACE CONNECTOR
PERIPHERAL DRIVE CONNECTOR
POWER CONNECTOR
For connection to a host computer.
Connects to peripheral units such as cash drawers, etc. Do not connect this to a telephone.
For connection of the AC adapter. Never unplug the AC adapter while the printer is on.

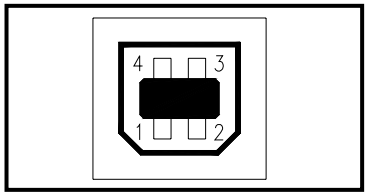
Before connecting any of the cables, make sure that both the printer and the computer are turned off.

2.2.1. Serial interface (D-SUB 25 pin female connector)



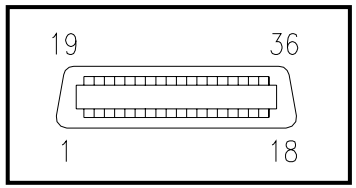
PIN	SIGNAL	I/O	DESCRIPTION
2	TxD	-	Printer transmit data line RS-232C level
3	RxD	-	Printer receive data line RS-232C level
4, 20	DTR	Output	Printer handshake to host line RS-232C level
6	DSR	Input	Data Send Ready
1, 7	GND	-	System Ground

2.2.2. USB interface (4-pin "B" Type USB connector)



PIN	SIGNAL	I/O	DESCRIPTION
1	+5V	-	+5V
2	DATA-	-	Printer transmit data line
3	DATA+	-	Printer transmit data line
4	GND	-	System Ground

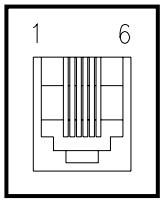
2.2.3. Parallel interface (Centronics parallel connector)



PIN	SIGNAL	I/O	DESCRIPTION
1	STROBE-	Input	Synchronize signal Data received
2-9	DATA0-7	Input	Data bit Transmitted 0 – 7
10	ACK-	Output	Data receiving competed
11	BUSY	Output	Impossible to printer data receiving
12	PE	Output	Paper empty
13	SELECT	Output	Printer's status for ON/OFF line
14	AUTO FEED-	Input	ND
15	GROUND	-	System Ground
16	GROUND	-	System Ground
17	NC	-	
18	LOGIC-H	-	+5V
19-30	GROUND	-	System Ground
31	INIT-	Input	Initialize
32	ERROR-	Output	Printer Error
33	GROUND	-	System Ground
34	NC	-	
35	+5V	-	+5V
36	SELLECT IN-	Input	ND

2.2.4. Cash Drawer Connector

The printer can operate two cash drawers with a 6 pin RJ-11 modular connector. The driver is capable of supplying a maximum current of 1.0 A for 510 ms or less when not printing.



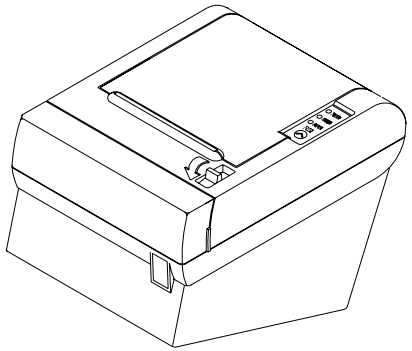
PIN	SIGNAL	DESCRIPTION
1	Signal GND	-
2	Drawer kick-out drive signal 1	Output
3	Drawer open/close signal	Input
4	+24V	-
5	Drawer kick-out drive signal 2	Output
6	Signal GND	-

2.3. Loading the Roll Paper

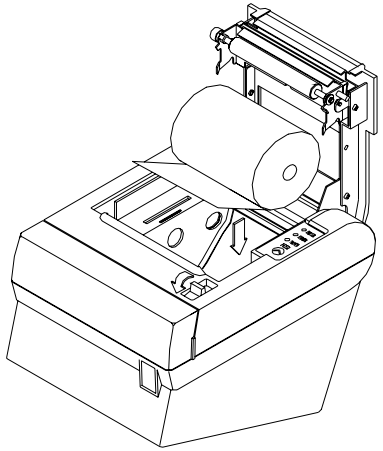
Notes: Be sure to use paper rolls that meet the specifications. Do not use paper rolls that have the paper glued to the core because the printer cannot detect the paper end correctly. (Turn Off Power switch)

☞ **Turn Off Power switch**

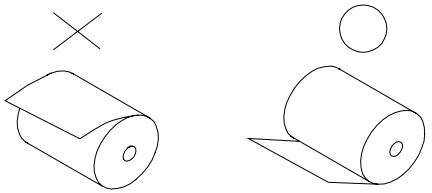
1. Make sure that the printer is not receiving data; otherwise, data may be lost.
2. Open the paper roll cover by pulling down the cover-open lever.



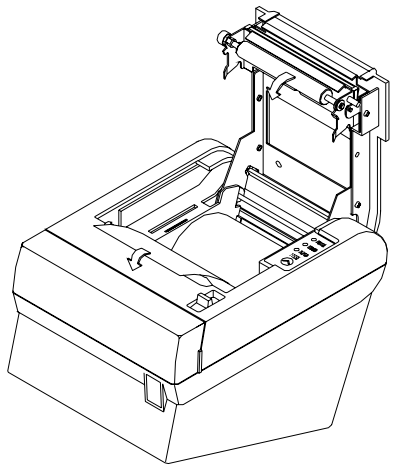
3. Remove the used paper roll core if there is one.
4. Insert new paper roll as shown below.



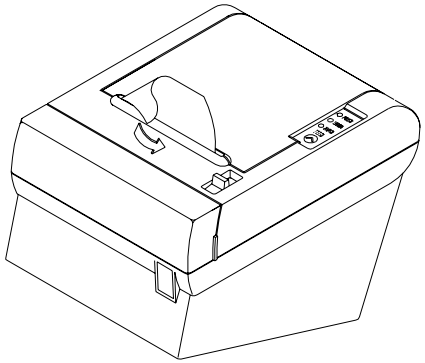
5. Be sure to note the correct direction that the paper comes off the roll.



6. Pull out a small amount of paper, as shown. Then, close the cover.



7. Tear off the paper as shown.



2.4. DIP Switch Setting

The OM-9300 is set up at the factory to be appropriate for almost all users. It does, however, offer some settings for users with special requirements. It has DIP switches that allow you to change communication setting, such as handshaking and parity check, as well as print density. There are two sets of DIP switches. The function of each switch is shown in the following tables.

2.4.1. Serial Interface Specifications

DIP Switch Set 1

SW	FUNCTION	ON	OFF	DEFAULT
1	Data Receive Error	Ignore	Print "?"	OFF
2	Hexadecimal	HEXDUMP	NORMAL	OFF
3	Hands Shaking	XON/OFF	DTR/DSR	OFF
4	Data Length	7bits	8bits	OFF
5	Parity Check	ENABLED	DISABLED	OFF
6	Parity Check	EVEN	ODD	OFF

Baud rate selection

Transmission speed	SW-7	SW-8
4800 baud	ON	ON
600 baud	OFF	ON
19200 baud	ON	OFF
38400 baud	OFF	OFF

Print Density

Print Density	SW-9	SW-10
Lower Power	ON	ON
Normal	OFF	ON
Normal	ON	OFF
Dark	OFF	OFF

DIP Switch Set 2

Functions	SW–1	SW-2	SW–3	SW-4	Remarks
Epson (TM-88)	OFF	OFF	-	-	
Citizen (CBM-230)	ON	OFF	-	-	203 DPI
Citizen (IDP-3540)	OFF	ON	-	-	
-	-	-	-	-	

2.4.2. Parallel Interface Specification

DIP Switch Set 1

SW	FUNCTION	ON	OFF	DEFAULT
1	Reserved	-	-	OFF
2	Hexadecimal	HEXDUMP	NORMAL	OFF
3	Reserved	-	-	OFF
4	Reserved	-	-	OFF
5	Reserved	-	-	OFF
6	Reserved	-	-	OFF

Baud rate selection

Transmission speed	SW-7	SW-8	DEFAULT
Reserved	-	-	OFF
Reserved	-	-	OFF
Reserved	-	-	OFF
Reserved	-	-	OFF

Print Density

Print Density	SW-9	SW-10
Lower Power	ON	ON
Normal	OFF	ON
Normal	ON	OFF
Dark	OFF	OFF

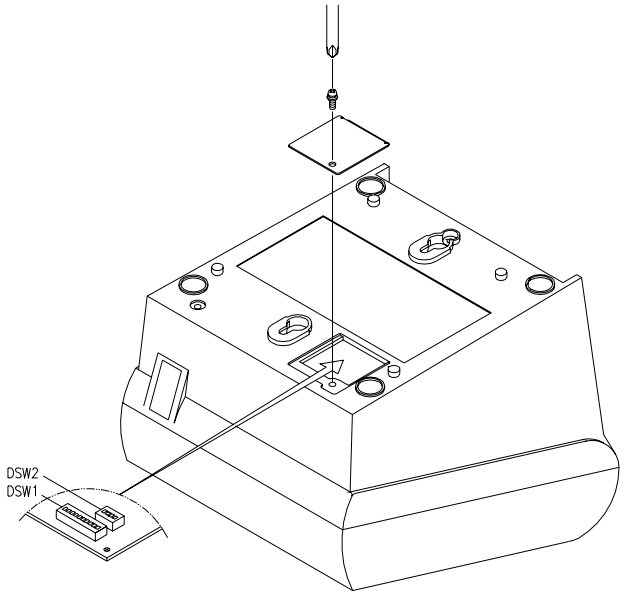
DIP Switch Set 2

Functions	SW–1	SW-2	SW–3	SW-4	Remarks
Epson (TM-88)	OFF	OFF	-	-	
Citizen (CBM-230)	ON	OFF	-	-	203 DPI
Citizen (IDP-3540)	OFF	ON	-	-	
-	-	-	-	-	

☞ **CAUTION:**

Turn off the printer while removing the DIP switch cover to prevent an electric short, which can damage the printer.

1. Make sure the printer is turned off.
2. Remove the screw from the DIP switch cover. Then, take off the DIP switch cover as shown in the illustration below.

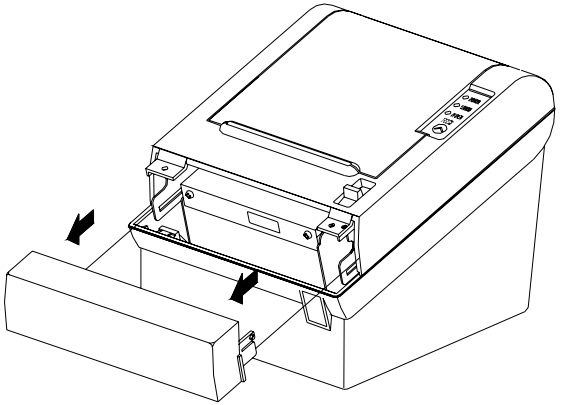


3. Set the switches using a pointed toll, such as tweezers or a small screwdriver.
4. Replace the DIP switch cover. Then, secure it with the screw.
   The new settings take effect when you recycle the printer power.

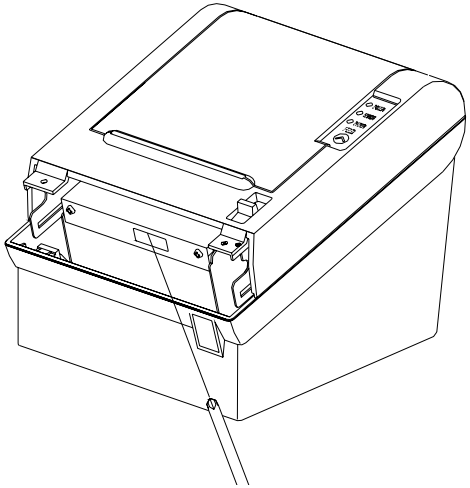
☞ **CAUTION:**

When the paper is jammed with cutter, the top cover might be stuck. In this case, repeat power on and off several times.
If the top cover is still stuck, please follow the steps to release the papers from jamming.

1. Make sure the printer is turned off.
2. Take out cutter cover as shown.



3. Turn screw with drivers to a direction until paper is released from the cutter.

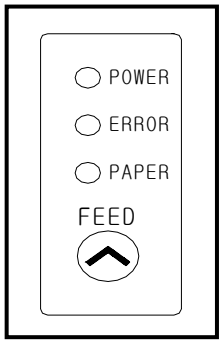


Chapter 3. Control panel

3.1. Control panel

You can control the basic paper feeding operations of the printer with the button on the control panel. The indicator lights help you monitor the printer's status.

Control Panel



Button
The button can be disabled by the ESC c 5 command.

Press the FEED button once to advance paper one line. You can also hold down the FEED button to feed paper continuously.

3.2. Error indicator

This section explains the different patterns signaled by the two LED indicators located on the top cover of the OM-9300.

STATUS	LED3	LED2	LED1	REMARKS
	RED	RED	GREEN	
Power off	OFF	OFF	OFF	Normal power is not supplied to the printer
Power on	OFF	OFF	ON	Normal power is supplied to the printer
On line	OFF	OFF	ON	Normal error-free mode
Cover open	ON	ON	ON	Close cover
Paper empty	ON	ON	ON	Insert new paper roll
Test mode	OFF	OFF	ON	Ignored error led

Chapter 4. Self Test

The self-test lets you know if your printer is operating properly. It checks the control circuits, printer mechanisms, print quality, ROM version, and DIP switch settings.

This test is independent of any other equipment or software.

Running the self test

1. Make sure the printer is turned off and the printer cover is closed properly.
2. While holding down the FEED button, turn on the printer using the switch on the front of the printer to begin the self test. The Self Test prints the printer settings and then prints the following,
   Cuts the paper, and pauses. (Error LED On)

   Self test Printing.
   Please press the PAPER FEED button.

3. Press the FEED button to continue printing. The printer prints a pattern using the built-in character set.
4. The self test automatically ends and cuts the paper after printing the following:

   *** completed ***

   The printer is ready to receive data as soon as it completes the self-test.

Chapter 5. Hexadecimal Dump

This feature allows experienced users to see exactly what data is coming to the printer. This can be useful in finding software problems.
When you turn on the hex dump function, the printer prints all commands and other data in hexadecimal format along with a guide section to help you find specific commands.

To use the hex dump feature, follow these steps:

1. After you make sure that the printer is off and Dip sw 1-2 is ON, turn on the printer.
2. Run any software program that sends data to the printer. The printer prints “Hexadecimal Dump” and then all the codes it receives in a two-column format. The first column contains the hexadecimal codes and the second column gives the ASCII characters that correspond to the codes.

Hexadecimal Dump

1B	21	00	1B	26	02	40	40	.!..& . @ @
1B	25	01	1B	63	34	00	1B	.%.. c4 ..
41	42	43	44	45	46	47	48	ABCDEFGH

▶ A period (.) is printed for each code that has no ASCII equivalent.

3. Turn off the printer, and make sure that DIP switch 1-2 turns off.
4. Turn on the printer.

Chapter 6. Specifications

6.1. General Specifications

(1) Printing Method Direct line thermal printing.

(2) Print speed Max. 920 dots/sec. (130mm/sec.)

(3) Dot density

180 DPI (Hor / Ver)	180 / 180 (0.142mm / 0.142mm dot)
203 DPI (Hor / Ver)	203 / 180 (0.125mm / 0.142mm dot)

(4) Printing Width

180 DPI	Max 72mm (512 dots)
203 DPI	Max 72mm (576 dots)

(5) Number of print columns

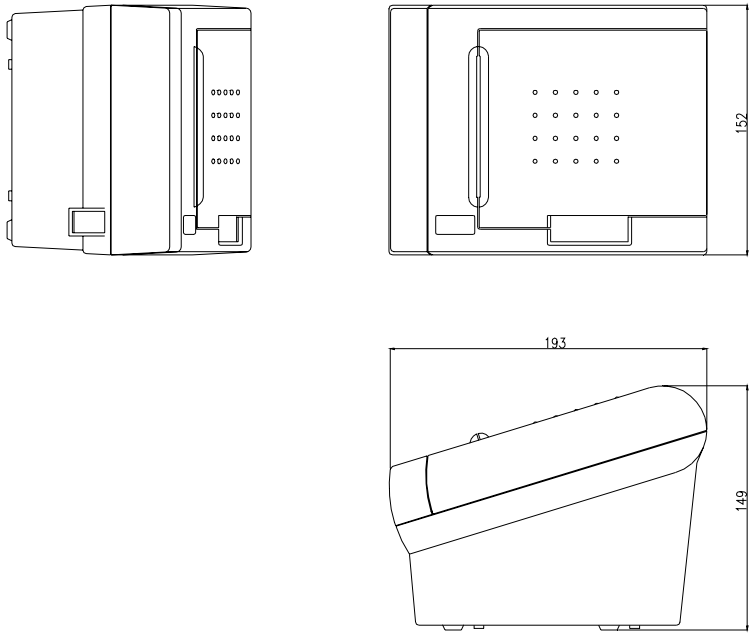
	No. of Columns	
	Font “A”	Font “B”
180 DPI	42	56
203 DPI	48	64

(6) Roll paper Refer to chapter 2 for details on the recommended roll Paper.
Paper width: 79.5 ± 0.5mm
Roll diameter: Ø80 mm or less

(7) Weight 1.76Kg

(8) Noise Approx. 55dB

(9) Overall dimension



6.2. Auto Cutter Specifications

(1) Cutting Frequency	Max. 30 cuts per minute
(2) Thickness of paper	0.065 ~ 0.1 mm

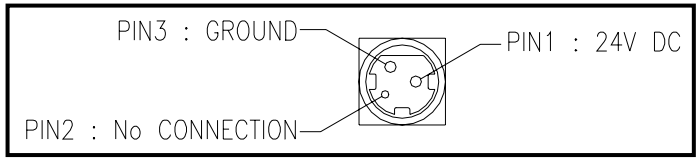
6.3. Interface

RS232C serial interface, Centronics parallel interface, USB interface. (IEEE1284)

6-4. Electrical Characteristics

(1) Input Voltage	DC 24V ± 10%
(2) Power Consumption	Operating: Approx. 1.5 A (at ASC Ⅱ printing) Peak : Approx. 10 A (at print duty 100%, For 10 seconds or less) Stand-by : Approx. 0.15 A

(3) Power Connector



Important!

When using a printer power supply other than optional AC adaptor (HT-U1135), be sure that the following cautions are observed.
Use a power supply of dc 24V±10% and more than 1.5A.
Be careful about installing the printer in an area where there is noise.
Take the appropriate measure to protect against electrostatic AC line Noise, etc.

6.5. Environmental Requirements

(1) Operating

Temperature	5° C to 45° C
Humidity	10% to 90% RH (without condensation)

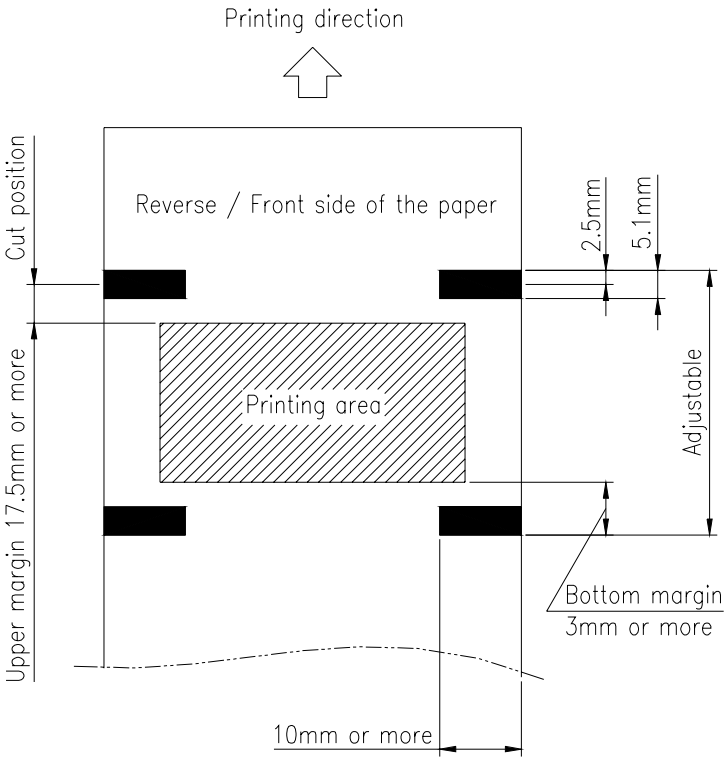
(2) Transport/Storage (except for paper)

Temperature	-20° C to 60° C
Humidity	10% to 90% RH (without condensation)

6.6. Reliability

(1) MCBF	30 million lines (based on an average printing rate of12.5% with paper thickness in the range 65µm to 75µm) 20 million lines (based on an average printing rate of 12.5% with paper thickness in the range 76µm to 150µm)
(2) Head Life	100 million pulses, 100Km
(3) Cutter Life	1.0 million cuttings (If the paper thickness is between 65 and100µm)

6.7. Black mark specifications



<Note>
1. The cut position shown above is adjustable.
2. The black mark's PCS value must be 0.90 or more.

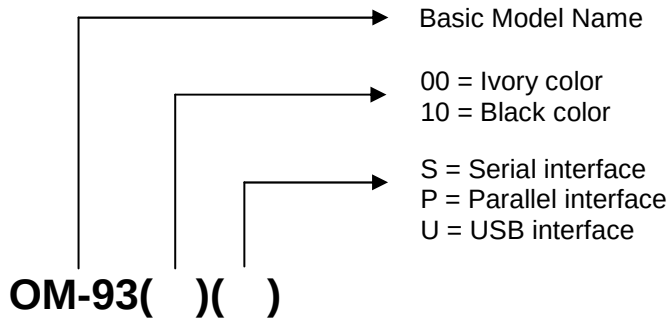
Chapter 7. Command List

No.	Command	Function
1	HT	Horizontal tab
2	LF	Print and line feed
3	CR	Print and carriage return
4	FF	Print end position label to start printing
5	CAN	Cancel print data in page mode
6	DLE EOT	Real-time status transmission
7	DLE ENQ	Real-time request to printer
8	DLE DC4	Generate pulse at real-time
9	ESC FF	Print data in page mode
10	ESC SP	Set character right-side spacing
11	ESC !	Set print mode
12	ESC $	Select/cancel user-defined character set
13	ESC %	Define user-defined characters
14	ESC &	Turn underline mode on/off
15	ESC *	Set bit image mode
16	ESC -	Turn underline mode on/off
17	ESC 2	Set 1/6 inch line spacing
18	ESC 3	Set line spacing using minimum units
19	ESC =	Select peripheral device
20	ESC ?	Cancel user-defined characters
21	ESC @	Initialize printer
22	ESC D	Set horizontal tab positions
23	ESC E	Select emphasized mode
24	ESC G	Select double-strike mode
25	ESC J	Print end feed paper using minimum units
26	ESC L	Select page mode
27	ESC M	Select character font
28	ESC R	Select international character set
29	ESC S	Select standard mode
30	ESC T	Select print direction in page mode
31	ESC V	Set/cancel 90° cw rotated character
32	ESC W	Set printing area in page mode
33	ESC \	Set relative position
34	ESC a	Align position
35	ESC c 3	Select paper sensor(s) to output paper-end signals
36	ESC c 4	Select paper sensor(s) to stop printing
37	ESC c 5	Enable/disable panel buttons
38	ESC d	Print and feed paper *n* lines
39	ESC p	General pulse
40	ESC t	Select character code table

41	ESC {	Set/cancel upside-down character printing
42	FS p	Print NV bit image
43	FS q	Define NV bit image
44	GS !	Select character size
45	GS $	Set absolute vertical print position in page mode
46	GS *	Define downloaded bit image
47	GS /	Print down-loaded bit image
48	GS B	Turn white/black reverse printing mode on/off
49	GS H	Select printing position of HRI characters
50	GS I	Transmit printer ID
51	GS L	Set left margin
52	GS P	Set horizontal and vertical motion units
53	GS V	Cut paper
54	GS W	Set printing area width
55	GS \	Set relative vertical print position in page mode
56	GS a	Enable/disable Automatic Status Back(ASB)
57	GS f	Select font for HRI characters
58	GS h	Set bar code height
59	GS k	Print bar code
60	GS r	Transmit status
61	GS v 0	Print raster bit image
62	GS w	Set bar code width
	< Add >	
1	ESC i	Full cut
2	ESC m	Partial cut
3	FS !	Set print mode(s) for Kanji characters
4	FS &	Select Kanji character mode
5	FS -	Turn underline mode on/off for Kanji character
6	FS .	Cancel Kanji character mode
7	FS 2 c1 d1…dk	Define user-defined Kanji characters
8	FS C	Select Kanji character code system
9	FS S 1 2	Set left-and right-side Kanji character spacing
10	FS W	Turn quadruple-size mode on/off for Kanji character

Appendix

A.1 Ordering information



[Example]

OM-9310P = Black color parallel interface printer

A.2 Printer mechanism handling

1) Do not pull the paper out when the cover is closed.
2) Because the thermal elements of the print head and driver ICs are easy to break, do not touch them with any metal objects.
3) Since the areas around the print head become very hot during and just after printing, do not touch them.
4) Do not use the cover open button except when necessary.
5) Do not touch the surface of the print head because bust and dirt can stick to the surface and damage the elements.
6) Thermal paper containing Na, K, Cl ions can harm the print head thermal elements. Therefore, be sure to use only the specified paper.

A.3 Thermal paper handling

❖ **Notes on using thermal paper**

Chemicals and oil on thermal paper may cause discoloration and faded printing. Therefore, pay attention to the following;

1) Use water paste, starch paste, polyvinyl paste, or CMC paste when gluing thermal paper.
2) Volatile organic solvents such as alcohol, ester, and ketone can cause discoloration.
3) Some adhesive tapes may cause discoloration or faded printing.

4) If thermal paper touches anything that includes phthalic acid ester plasticizer for a long time, it can reduce the image formation ability of the paper and can cause the printed image to fade. Therefore, when storing thermal paper in a card case or sample notebook, be sure to use only products made from polyethylene, polypropylene, or polyester.
5) If thermal paper touches diazo copy paper immediately after copying, the printed surface may be discolored.
6) Thermal paper must not be stored with the printed surfaces against each other because the printing may be transferred between the surfaces.
7) If the surface of thermal paper is scratched with a hard metal object such as a nail, the paper may become discolored.

❖ **Notes on thermal paper storage**

Since color development begins at 70˚C (158˚F), thermal paper should be protected from high temperature, humidity, and light, both before and after printing.

1) Store paper away from high temperature and humidity. Do not store thermal paper near a heater or in enclosed places exposed to direct sunlight.
2) Avoid direct sunlight. Extended exposure to direct light may cause discoloration or faded printing.